

**Amendments to the Claims:**

This listing of claims replaces all prior listings, and versions, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A method for estimating a channel, the method comprising the steps of:
  - calculating a least square channel estimate based on a training sequence;
  - calculating an interpolation coefficient ~~coefficient~~, wherein said interpolation coefficient ~~coefficient~~ is independent of a channel multipath power profile ~~from the statistics~~ of the channel; and
  - estimating the channel based on said interpolation coefficient ~~coefficient~~ and said least square channel estimate.
2. (Original) The method of claim 1, wherein the step of calculating an interpolation coefficient comprises the step of calculating the maximum number of resolvable multiple paths on the channel.
3. (Original) The method of claim 2, wherein the step of calculating an interpolation coefficient further comprises the step of constructing a receiver multipath power profile of the channel.
4. (Original) The method of claim 3, wherein the step of calculating an interpolation coefficient further comprises the step of performing a fast fourier transform on said multipath power profile.
5. (Original) The method in claim 4, wherein the step of calculating an interpolation coefficient further comprises the step of determining an interpolation matrix by constructing a teoplitz of the result of the step of performing a fast fourier transform.

6. (Original) The method in claim 5, wherein the step of calculating an interpolation coefficient further comprises multiplying said interpolation matrix by said least square channel estimate.

7. (Currently Amended) An apparatus for estimating a channel, the apparatus comprising:

an LS estimator for calculating a least square channel estimate based on a training sequence;

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a coefficient interpolator coupled to said LS estimator, said coefficient interpolator for calculating an interpolation coefficient for the channel, wherein said interpolation coefficient is independent of a channel multipath power profile ~~from the~~ ~~statistics~~ of the channel; and

a channel estimator coupled to said coefficient interpolator, said channel estimator for estimating the channel based on said interpolation coefficient, formed independent of the channel multipath power profile, and said least square channel estimate.

8. (Original) The apparatus of claim 7 wherein said coefficient interpolator further calculates the maximum number of resolvable paths on the channel for use in calculating, said interpolation coefficient

9. (Original) The apparatus of claim 8, wherein said coefficient interpolator constructs a receiver multipath power profile of the channel for use in calculating said interpolation coefficient.

10. (Original) The apparatus of claim 9, wherein said coefficient interpolator further performs a fast fourier transform on said multipath power profile to generate a result for use in calculating said interpolation coefficient.

11. (Original) The apparatus of claim 10, wherein said coefficient interpolator further constructs a teoplitz matrix of the result of said fast fourier transform to generate an interpolation matrix.

12. (Original) The apparatus of claim 11, wherein said coefficient interpolator further multiplies said interpolation matrix by said least square estimate calculated in said LS estimator to estimate the channel.

13. (Currently Amended) A method for estimating at least one channel, said method comprising the steps of:

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determining a receiver multipath profile for the at least one channel; and  
calculating an interpolator coefficient based on said receiver multipath profile, the interpolator coefficient independent of a channel multipath power profile of the channel.

14. The method of claim 13, further comprising the steps of:  
calculating a least square channel estimate for each channel of the at least one channel; and  
multiplying each least squares channel estimate for each channel of the at least one channel by said interpolation coefficient to estimate each at least one channel.

15. (Currently Amended) An apparatus for estimating at least one channel, said apparatus comprising:  
a coefficient interpolator for determining a receiver multipath profile for the at least one channel and calculating an interpolation coefficient based on said receiver multipath profile, the interpolation coefficient independent of a channel multipath power profile of the channel.

16. (Original) The apparatus of claim 15, further comprising:  
a least squares channel estimator for calculating a least squares channel estimate for each at least one channel; and

a channel estimator coupled to said least squares estimator and said coefficient interpolator, said channel estimator for multiplying each least squares channel estimate for each at least one channel by said interpolation coefficient to estimate each at least one channel.

17. (Currently Amended) An OFDM apparatus comprising:  
means for storing a receiver multipath power profile; and  
means for calculating an interpolator coefficient based on said receiver multipath power profile, said interpolator coefficient independent of a channel multipath power profile of the channel separate from said receiver multipath power profile.

18. (Original) The apparatus in claim 16, further comprising:  
a buffer for storing a training sequence;  
means for calculating a least square channel estimate from said stored training sequence; and  
means for combining said least square channel estimate with said interpolator coefficient.

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